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Should Public Drug Plans be Based on Age or Income?

By switching from age-based to income-based drug plans, provinces could better cope with the costs of demographic aging and offer drug benefits more equitably.

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The Study In Brief

Drugs have become an increasingly critical part of healthcare services in Canada over the last few decades – with nearly $30 billion spent on prescription drugs nationwide in 2013. But it's not clear that the current design of most provincial drug plans can withstand the financial pressures of an aging population and offer equitable access to public benefits.

Owing to budgetary constraints, each province has designed unique, non-universal drug coverage to fill the gaps where private insurance does not exist. Provincial drug plans offer coverage based on an individual's age, income, availability of private insurance (through one's employer), or some combination of the three. We look at the most common age-based provincial plans – as well as the trend towards income-based plans.

Age-based plans, which usually apply only to seniors, have major drawbacks. These include a cost structure that will be pressured from an aging population and inequities in benefit access: seniors with income and drug needs similar to a working-age family without private drug coverage pay a much smaller share of their drug costs than the family does. Provinces with age-based plans also extend benefits to those on social assistance, making transitioning off welfare difficult for families with drug needs. Further, low-income workers are those most likely to be under- or uninsured in provinces with age-based plans, which include Ontario, Alberta, Prince Edward Island and Nova Scotia.

Income-based plans have challenges as well. They must be designed carefully to avoid significantly increasing in public costs and hindering access to prescribed drugs. Plus, provinces must consider how income-tested benefits can have negative incentive effects on work. High marginal tax rates reduce the incentive to work and earn. And when combined with reductions in the plethora of targeted government programs, badly designed income-based plans can create high marginal tax rates.

We compare the advantages and pitfalls in moving from an age-based plan to one based on income. Further, we glean lessons from provinces with income-based plans – British Columbia and New Brunswick, which will have a new plan in 2015. On balance, we find that the benefits of an income-based plan make them superior to age-based ones. An income-based plan would apply to all individuals and families without private coverage, including those on social assistance and seniors.

Although much of the discussion for reforming Canada's drug coverage to date has focussed on creating a universal federal drug plan, other options must be explored absent political traction in pursuit of this approach. Age-based plans might have been a cost-friendly option decades ago when the ratio of seniors to workers was low, but the wave of retiring baby boomers will rapidly makes these plans less affordable. Income-based plans are a better alternative for cash-constrained provinces.

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Pharmaceuticals play an increasingly important role in modern healthcare systems. They offer benefits such as the possibility of non-invasive treatment for illnesses, shorter hospital stays and lower chances of readmission, among many others.

In Canada, over the last 30 years, public and private prescribed-drug costs have risen from 6 to 14 percent of total healthcare costs. In 2013, some $29 billion was spent on prescription drugs nationwide.

Drugs are not, however, included in the 1984 *Canada Health Act's* list of insured services. Therefore, provinces are not directly responsible for paying their costs. As a result, provincial approaches vary. All plans cover drug costs for patients while in hospital, but do not cover all outpatient costs. If individuals and families lack private coverage, public insurance tries, with varying degrees of success, to fill the gaps that inevitably result. Although a large share of Canadians and their families are insured for prescription drug needs via private employer plans, many Canadians are under-insured – meaning they face high out-of-pocket costs – or uninsured.

This *Commentary* is not an investigation of optimal drug-plan design, which would have to revisit whether prescription drugs should be included on the *Act's* list of insured services.[1] Instead, this paper focuses is on the design of existing public plans. The limited availability of public funds has been a major factor in designing drug plans over recent decades, and the same is likely to be true in the future. Owing to budgetary constraints, core provincial drugs plans offer coverage based on an individual's age, income, availability of private insurance, or some combination of the three. They also typically offer some coverage for social assistance recipients.

In this *Commentary*, we look specifically at the issues associated with provincial plans that offer senior-based coverage – the most common drug plan, under which all citizens aged 65 and up qualify for benefits – and the trend toward income-based coverage where benefits vary according to income.

Clearly, non-universal drug plans, like all targeted public programs, embody design challenges – who is covered and for how much? Age-based plans allow all individuals aged 65 or over unfettered access to drugs at reasonably low private costs. These plans may have seemed more sustainable when the ratio of seniors to workers in the population was small, but demographic aging will put major upward pressure on public costs in the coming years.

Furthermore, age-based plans create inequities with working-age people who lack private coverage but earn similar incomes; i.e., a working-age family with similar drug needs and income as a senior does not qualify for the same level of public support. Another complication relates to senior-based plans

The authors wish to thank reviewers who commented on earlier drafts of this *Commentary*. The authors retain responsibility for any remaining errors.

1 Morgan et al. (2013) addresses Canadian drug-plan schemes from an optimal design perspective.

that offer a second component of drug coverage for individuals on social assistance, under which drug benefits are lost once an individual obtains full-time employment.

In contrast, income-based plans remedy access inequities by ensuring that public benefits are determined according to need and ability to pay, regardless of age. Furthermore, these schemes can reduce public drug costs linked to an aging population because seniors would pay part of the expense. As well, they have the potential economic and administrative benefit of rolling social assistance drug benefits into a single, comprehensive plan.

Still, design hurdles also exist for income-based approaches; i.e., how to limit public costs, whether to make participation mandatory and how to manage work disincentives caused by reducing drug benefits as household income rises. While mandatory participation in income-based plans that charge premiums can improve drug access, such schemes must design the reduction of drug benefits carefully to avoid work disincentives and keep public costs manageable. In contrast, voluntary plans that charge deductibles may have an easier time controlling public costs, but high deductibles may cause some individuals to avoid filling prescriptions.

In this *Commentary*, we examine two provincial examples of income-based plans – those of British Columbia and New Brunswick, which is starting its new plan in 2015 – to gather lessons about the transition from senior-based plans and how design issues can affect access and costs. We look at the way in which these provinces set public benefits and private premiums, deductibles and co-payments. We conclude that income-based coverage is a sensible choice for public drug plans, provided that benefits are scaled back appropriately as income rises.

PROVINCIAL DRUG PLANS TODAY

Responsibility for designing public drug coverage resides with the provinces.[2] And while there are many differences in public coverage across provinces, the core plans have some common features:

- all are based on age (seniors),[3] income, enrolment in a private group plan or some combination of the three;
- social assistance recipients are covered; and
- some coverage is provided for catastrophic drug costs.[4]

Table 1 shows the assortment of plans across the provinces. Many, such as Ontario, Alberta and Saskatchewan, offer drug coverage mainly for senior populations. Some provinces provide benefits only to low-income seniors, such as Nova Scotia and Newfoundland and Labrador.

Ontario's drug plan, generally speaking, typifies the most common approach. The province administers a drug plan for seniors, covering their prescription drug costs for approved medications but setting small annual deductibles and co-payments. (Unless they are low-income, Ontario seniors pay a $100 deductible and co-payments of up to $6.11 per prescription; low-income seniors pay only a co-payment of up to $2.)

2 The federal government is not in charge of a national drug policy, though it does oversee about six different drug plans for special population groups, such as First Nations, Inuit, veterans, RCMP, etc. The territories are also responsible for in charge of their own drugs plans, but they are also not considered in this *Commentary*.

3 Quebec also provides public coverage to children and university students between the ages 18 to 25.

4 In addition, the federal government compensates somewhat for catastrophic coverage, including drugs, in the form of the medical expenses tax credit (METC). The METC applies to medical expenses in excess of the lesser of $2,171 (in 2014) or 3% of net income.

Table 1: Provincial Drug Plans in Canada

	General Plan Qualification		Special Plans		
Province	**Public plan specific to seniors (aged 65+)**	**Public plan based on income**	**Public plan specific to people on social assistance**	**Catastrophic drug plan? Max limit on out-of-pocket (OOP) spending**	**Disease-specific or situation-specific public plans**
NL	Yes; but the plan targets lower-income seniors	Yes; voluntary for those without private coverage; income thresholds for coverage are $27,152 (individuals) or $42,871 (families with children)	Yes	Yes; total drug spending limited to 5% to 10% of income (varies by income, not for families with $150,000+ annual income)	Yes; cystic fibrosis and growth hormone deficiency
PE	Yes	No	Yes	No	Yes; covers over two dozen instances (ranging from HIV/AIDS to quitting smoking)
NS	Yes; premium (max $424) and co-payment (max $382) depends on income	No	Yes	Yes; max deductible up to 1% to 20% of income; max copayment from 4% to 15% of income; no premium	Yes; diabetes and cancer
NB (pre-2013)	Yes; benefits targeted to low-income seniors	No	Yes	No	Yes; cystic fibrosis, MS, organ transplants, HIV/AIDS and growth hormone deficiency
NB (post-2015)	Yes; same as above	Yes; mandatory for those without private coverage; premium depends on family income, as does copay ($5 to $30 max) per prescription	Yes; social assistance recipients are exempt from premiums	No	Yes; same as above
QC	Yes; mandatory for seniors without a private plan	Yes; mandatory for those without private insurance; benefits adjust with income up to a max[1]	Yes; social assistance recipients are exempt from premiums, deductibles and copayments	Yes	No

Table 1: Continued

	General Plan Qualification		Special Plans		
Province	**Public plan specific to seniors (aged 65+)**	**Public plan based on income**	**Public plan specific to people on social assistance**	**Catastrophic drug plan? Max limit on out-of-pocket (OOP) spending**	**Disease-specific or situation-specific public plans**
ON	Yes	No	Yes[2]	Yes; max deductible is 4% of income	Yes; special drugs plan, cancer, inherited metabolic diseases, respiratory syncytial virus and visudyne.
MB	Yes	Yes; voluntary for those without private insurance, deductible varies by income	Yes	Yes; max deductible of 2.81% to 6.36% of income	Yes; cancer, HIV/AIDS and palliative care
SK	Yes	No	Yes	Yes; max out-of-pocket spending at 3.4% of family income (adjusted)	Yes; cancer, HIV/AIDS, independent living, children, emergency drugs and palliative care
AB	Yes	Yes; voluntary for those without private coverage; premium depends on income ($1,416 max); $50 deductible; copay is 30% ($25 max) per drug	Yes	No	Yes; covers at least 10 special cases (ranging from cancer to MS)
BC	No	Yes; voluntary for those without private coverage; deductible depends on income	Yes	Yes; deductible depends on income (max 3% of income); max out-of-pocket spending varies by income (max 4%)	Yes; at least eight, including cystic fibrosis, HIV/AIDS and palliative

Note:

1) The deductible and co-payment maximum is $1,000 per year. Children and full-time students under 25 are exempted from deductible and co-payments. Seniors are also exempted if low-income, or pay only half up to an income threshold.
2) Ontario divides social assistance programs into two programs – Ontario Works, which is intended to help people who are in temporary financial need, and the Ontario Disability Support Program (ODSP) to help people with disabilities. While ODSP recipients also qualify for drug benefits, this *Commentary* focuses on Ontario Works, which is similar to social assistance programs in other provinces.

Sources: Various provincial documents; New Brunswick (2012).

In 2003, British Columbia switched from an Ontario-type plan to a voluntary income-based drug plan for all citizens. The level of public coverage depends on family income, not age.[5]

Quebec's public drug plan, combining senior- and income-based elements, is mandatory for all individuals who do not have private drug insurance. Individuals must pay annual premiums, which vary based on income, as well as deductibles and copayments. In 2015, New Brunswick is set to implement a plan with similar characteristics.

Furthermore, while all provinces offer drug coverage for individuals on social assistance, income-based plans may incorporate social assistance beneficiaries into the general plan design, whereas age-based schemes must run a separate plan for those on social assistance.

Drawbacks to Age-Based Plans

Age-based plans face a number of challenges. Drug coverage for those aged 65 and over often leads to inequities in accessing drug benefits. As well, such plans are exposed to major cost pressures from aging. Furthermore, provinces that operate age-based plans also offer some coverage to permit access to drugs for low-income citizens by extending benefits to those on social assistance. But those with incomes slightly above social assistance levels often receive no benefits at all.

In contrast, income-based plans can help to reduce inequities in coverage and cost pressures from aging as well as allow, through better design, for a gradual loss of benefits as individuals transition from social assistance.

Equity Concerns and Unfilled Prescriptions

There are two important equity principles that must be considered for public drug plans. The first is that equals should be treated equally, meaning that people with similar ability to pay should be responsible for a similar level of drug costs. The second is that unequals be treated differently – those with a higher ability to pay should be responsible for a greater amount of their drug costs than those with lower ability to pay.

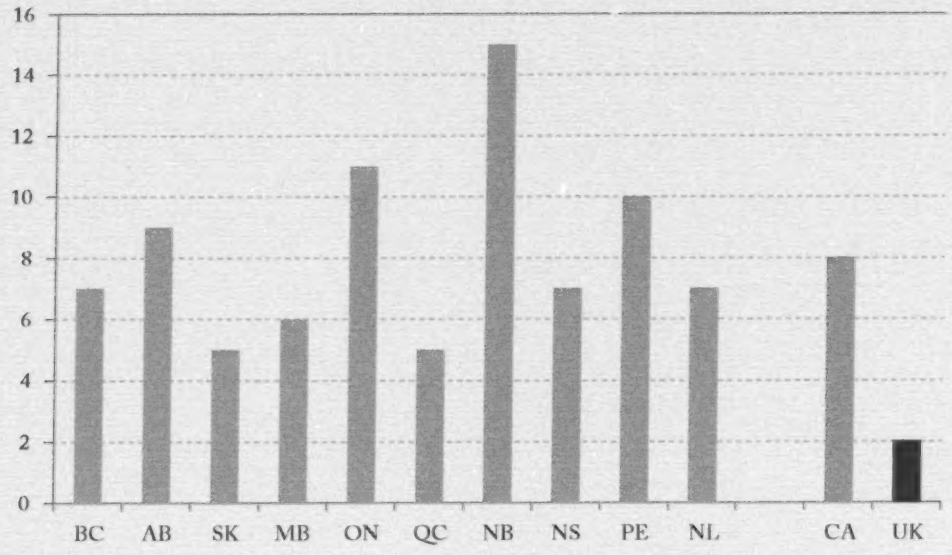
Under an age-based plan, seniors with a level of income and drug needs similar to a working-age family without private drug coverage pay a much smaller share of their drug costs. Meanwhile, income-based plans treat families of similar income and drug needs the same, regardless of age. And those who can better afford to pay, do so.

Another concern for policymakers is the impact of imposing some of the drug-cost burden on the user. In 2012, about 8 percent of all Canadians – ranging from a high of 15 percent in New Brunswick to a low of 5 percent in Quebec and Saskatchewan – reported avoiding filling a prescription because of its cost (Figure 1). This is in contrast to the 2 percent of UK citizens that report similar avoidance and cost issues. A separate study found that around 10 percent of Canadians, and about 17 percent of British Columbians, have problems affording medications (Law et al. 2012).

Taking the results of various studies together, there is some evidence to suggest that the number of Canadians reporting financial barriers to filling prescriptions is often higher in provinces with age-based plans than in provinces with income-based plans, though policy design matters. In provinces

5 The deductible amount and limits to private spending varies in B.C. depending on if someone was born prior to 1939. This was built into the reforms to help alleviate the concerns of seniors who did not have time to anticipate and plan for the 2003 changes.

Figure 1: Did Not Fill a Prescription or Skipped a Dose in Last 12 Months Because of Cost (2013)



Sources: Health Council of Canada (2014), results of the 2013 Commonwealth Fund General Public Survey..

with age-based plans, prescription avoidance arises mainly from working families who lack private insurance and face high out-of-pocket costs. Indeed, Ontario and Alberta have some of the highest rates of prescription avoidance across Canada (Figure 1).

Under income-based plans, the level of prescription avoidance differs according to plan design features. Quebec, with its mandatory income-based plan (for seniors, children and working families) without private insurance, has the lowest prescription avoidance rates among all provinces. B.C., however, with its income-based plan for all citizens, reports a much higher rate of unfilled prescriptions. The discrepancy in prescription avoidance between Quebec and B.C. is related to how each plan sets the level of private costs: Quebec charges premiums, deductibles and co-payments, whereas the B.C. plan sets only deductibles and limited co-payments. (Premiums are annual or monthly charges for participation in the plan, regardless of drug need. Deductibles are ceilings under which individuals are responsible for all drug costs incurred before public coverage kicks in.) Since B.C.'s deductibles and co-payments tend to be high, private costs at the moment of drug purchase are higher than under the Quebec plan, which likely leads to greater avoidance.

Aging Pressures on Public Costs

Drug needs increase with age, rising sharply past 60. Therefore, an aging population will place upward cost pressures on drug spending over the coming decades. This is particularly true in provinces where public coverage is targeted to seniors. Already, seniors make up the bulk of total public drug costs and beneficiaries in Ontario, Alberta, Nova Scotia,

New Brunswick and Prince Edward Island (Figure 2).

Financial estimates in Ontario, for instance, demonstrate the severity of the challenge. In 2013, the Ontario drug plan cost around $3.6 billion, or about 8 percent of all provincial health spending. The number of beneficiaries aged 65 and up was about two million. This number is expected to double by 2030. Projecting the current pattern of spending by age shows that the program cost is estimated to increase from around 1 percent of GDP in 2014 to around 2 percent of GDP by 2030 and about 3.5 percent of GDP by 2050 (Robson and Busby 2011; Drummond 2012).

Provincial plans with income-based drug coverage are not immune to the financial pressures associated with an aging population, but the degree to which they are exposed is less than in provinces with exclusive public coverage for seniors. This is because, under income-based drug plans, high-income seniors are asked to contribute a larger share of their drug costs than otherwise similar, high-income seniors pay in provinces with age-based plans.

Social Assistance Drug Benefits and the Welfare Wall

With the aim in mind of ensuring access to drugs based on need and not ability to pay,[6] one common solution is to offer public coverage for individuals on social assistance.[7] However, drug benefits are part of a broader set of shrinking public benefits for those coming off temporary social assistance programs.[8] The "welfare wall" concept captures the impact of reduced social assistance payments and related benefits on the income people end up with after returning to work.[9]

As it is, the losses add up for individuals transitioning from social assistance. They include: (i) the loss in drug benefits; (ii) simultaneous reductions in social assistance benefits (50 cents per dollar in Ontario); and (iii) other reductions in public benefits, such as transit subsidies and low-income childcare benefits. Plus, they must now contribute various payroll taxes from their paycheques. These factors give individuals strong incentives to remain on social assistance (MISWAA 2006, Larkin and Sheikh 2012).

In provinces with age-based plans, which offer a second set of drug benefits to social assistance beneficiaries, individuals under the age of 65 are responsible for nearly all their drug costs once they leave social assistance, which adds another brick in the welfare wall. This is a problem with no easy remedy.

Income-based drug plans can be designed to allow for a gradual loss of benefits as individuals transition from social assistance. In practice, however, the evidence of success on this front is mixed due to the way in which public subsidies are reduced with income and based on one's annual drug needs (See Box A for a discussion of the contributions of drugs to the welfare wall).

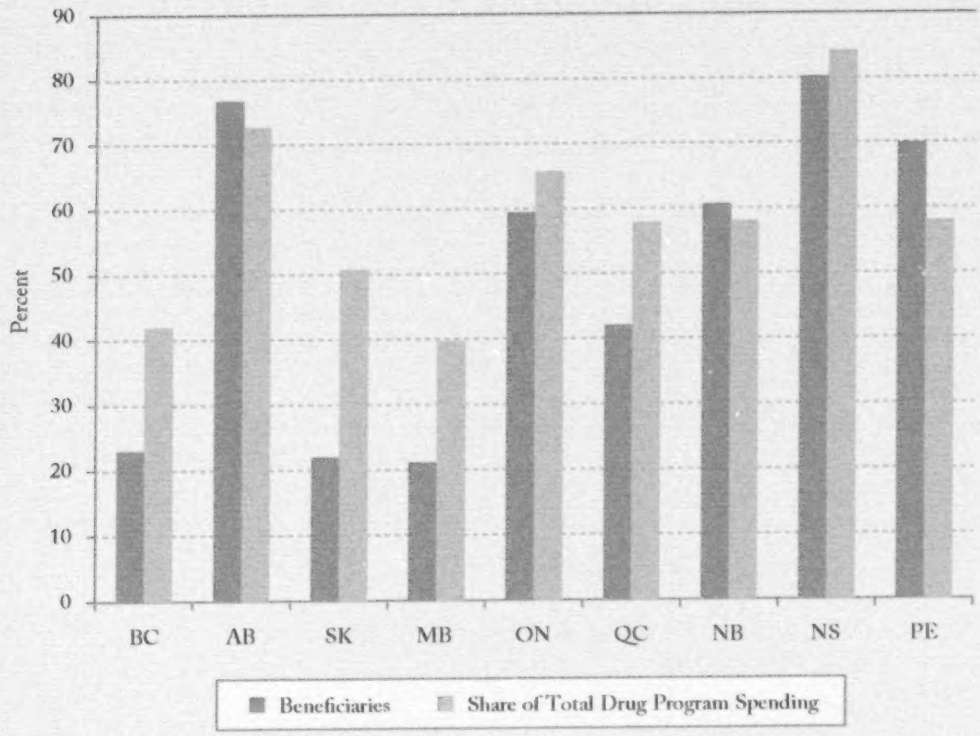
6 Provincial ministers of health have previously declared that no individual or family should "suffer undue financial hardship."

7 Table 1 shows the extensive, complex patchwork of additional drug plans in each province that exist in addition to social assistance plans. But the focus in this *Commentary* is on the social assistance plans, the largest of the additional plans.

8 In Ontario, where drug benefits are also extended to those who qualify for the Ontario Disability Support Program, drugs are not clawed back in the same way as they are for social assistance recipients under the Ontario Works program.

9 The reduction in marginal gains relates to marginal effective tax rates (METRs), which show the tax rate on each additional dollar of earnings after the impact of income-tested clawbacks (Laurin and Poschmann 2013). METRs are extraordinarily high for many Canadian families with high drug needs that are coming off social assistance.

Figure 2: Seniors' (aged 65+) Share of Total Public Drug Plan Beneficiaries and Public Drug Program Spending (2012)



Note: Authors' calculations for Quebec made from Régie de l'assurance maladie (2013, 117).

Source: Canadian Institute for Health Information (2014).

We later discuss how public subsidies for low-income individuals are targeted in New Brunswick's and B.C.'s drug plans and how some provinces with age-based plans grapple with the loss of drug benefits for those leaving social assistance. But first, we examine the major design issues arising from basing drug coverage on income.

The Problem with Income-Based Plans: Disincentives to Work

While there are equity and fiscal advantages in moving the basis of public drug coverage from age toward income, there is one major drawback – a reduced incentive to work. When an individual takes up a higher paying job or works more hours, his or her motivation in many cases is the ability

Box A: The Contribution of Drug Costs to the Welfare Wall

Consider the following examples of how drugs affect the welfare wall's size. Suppose an individual coming off social assistance takes a job that pays $20,000 per year and his or her annual drug needs range from $500 to $5,000. An individual with $5,000 of annual drug costs could face an income clawback related to drug needs up to one-quarter of salary, depending on the province (Table A1).

In most provinces that operate senior-based plans, individuals are responsible for nearly all their drug costs once they leave social assistance or when they hit the maximum allowable limit for coverage of out-of-pocket drug costs in each province. The contribution of drugs to the welfare wall may or may not be lower in provinces that offer income-based plans. In B.C., for example, drugs have one of the smallest impacts on the welfare wall. In Quebec, and potentially New Brunswick, which offer income-based plans (with a mix of age-based coverage), an individual could face drug-related costs larger than his or her actual drug needs. This is because of the annual premium imposed on working individuals without private insurance and the way in which public subsidies for premiums are reduced. Individuals on social assistance are fully subsidized and pay no annual premium, but once they transition off social assistance, private premium charges increase sharply. The speed of clawbacks in public plans is a design choice, however. Recognition of the challenges in transitioning from social assistance led in 2007 to the creation of the federal working income tax benefit, which offers tax relief for low-income workers to help reduce the welfare wall and encourage more Canadians to enter the workplace.

Table A1: Contributions of Drug Costs to Welfare Walls, by Province

Household Type	Single, no children			
Annual Drug Needs	$500	$1,000	$2,500	$5,000
NL	$142	$284	$710	$1,000
PE	$500	$1,000	$2,500	$5,000
NS	$500	$700	$1,000	$1,500
NB (pre-2013)	$500	$1,000	$2,500	$5,000
NB (post-2015)	$650*	$800	$860	$860
QC	$615*	$778	$1,265	$1,324
ON	$500	$824	$824	$824
MB	$500	$828	$828	$828
SK	$500	$680	$680	$680
AB	$500	$868	$883	$883
BC	$430	$580	$600	$600

Notes: We consider results for an individual leaving social assistance, earning $20,000 per year in income and enrolling in the public drug plan (if one is available) that provides the lowest total out-of-pocket spending. The total out-of-pocket spending includes any applicable premiums, deductibles and co-payments. Households in New Brunswick (post-2015), Ontario and Alberta have their prescriptions filled once per month.

* The contribution of drug costs to welfare walls in New Brunswick and Quebec may be greater than drug costs because of requirements to pay annual premiums in public drug plans once people leave social assistance, and such premiums may exceed the actual annual drug costs. Year 2015 calculations for New Brunswick are based on authors' assumptions on plan design (see p.18 for more).

Sources: Provincial websites; authors' calculations.

to spend the extra pay either immediately or in the future (savings). But if the individual's take-home income, however, does not rise, or rises only a little, the incentive to take up higher paying jobs or to work longer hours is reduced. The "marginal effective tax rate" (METR) is a common way of expressing how higher taxes and reduced benefits affect actual take-home income (Laurin and Poschmann 2013). Public drug benefits that decline with income have negative incentive effects on labour markets.

Increased METRs for Working Families

A few examples of provincial income-based drug plans and the implicit METRs for working families not on social assistance help illustrate design flaws from targeting benefits. We look for areas where METRs may increase sharply, where the reduction in drug benefits combines with reductions in other low-income benefits and where the lessening of benefits applies across broad income groups. Sharp increases in METRs, or "notch" effects, may affect decisions for individuals at the margin and might interact with the reduction in benefits with other public programs. Sharp benefit reductions that apply over a narrow income range seriously affect only a small proportion of the population, whereas a gradual reduction in benefits affects a larger group of people over a wider income range.

In a few provinces, the annual private deductibles and premiums for drugs do not rise smoothly with income, and some notching – large jumps in private costs (from lower public benefits) resulting from small increases in income – occurs. For example, in B.C. the annual deductible and family maximum for drug spending are specified as a percentage of income (Table 2).[10]

Imagine a family with an income of $29,950 that has annual drug expenses of $2,000 per year. In B.C., this family would have to pay about $900 per year in deductibles and co-payments. However, now imagine that a member of the family earns an extra $100. In this case, the family income would increase to $30,050, and the family would have to pay $1,200 per year in deductibles and copayments. In other words, an extra $100 in income results in more than $300 in additional out-of-pocket drug spending and a $200 overall earnings loss.

In Quebec's public drug plan, which requires the participation of those without private insurance, annual premiums are set according to household income, with monthly deductibles and co-payments up to a $1,000 annual maximum. Premiums rise with income, but they increase rapidly over a fairly narrow range, thereby boosting the METR for certain families that already face an exceptionally high METR. For instance, a two-parent, two-child household with an income of $35,000 to $43,000 that enrols in the public drug plan faces an all-inclusive METR of just over 92 percent (Figure 3). About 9.3 percentage points of this METR are due to the drug plan premium. To reduce this METR, the Quebec government could spread the premium increases over a greater range or shift them to a higher income range (where the pre-existing METR is lower).

Increased METRs for Seniors

Another challenge with income-based drug benefit plans is that seniors' METRs are often quite different than those of working families (Laurin and Poschmann 2014). And although seniors' METRs are less likely to influence their work decisions than those for working-age individuals,

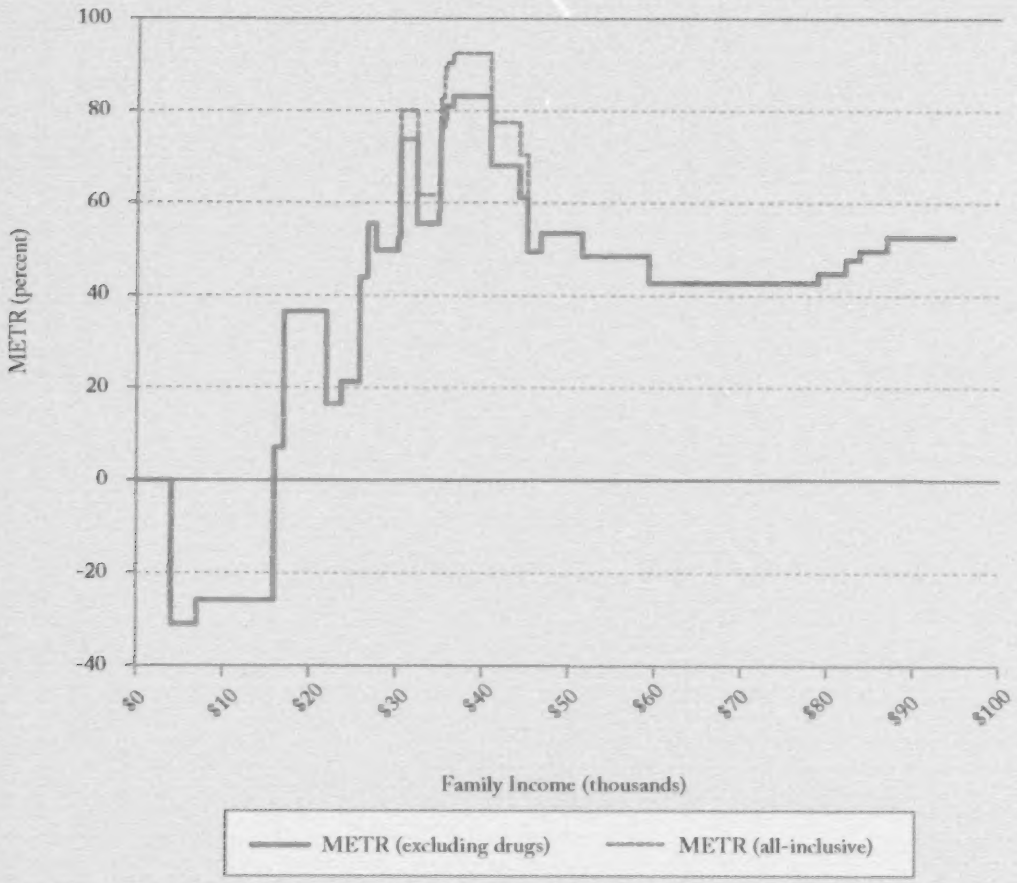
10 Manitoba's drug plan – which is an income-based plan somewhat similar to B.C.'s – produces some large notches along the income scale.

Table 2: British Columbia Drug Deductibles

Family Income	Deductible	Family Maximum
Less than $15,000	None	2% of income
$15,000 to $30,000	2% of income	3% of income
More than $30,000	3% of income	4% of income

Source: B.C. government website.

Figure 3: Quebec's Family METRs, With and Without Public Drug Benefits (2013)



Note: This simulation is for a two-parent, two-child household.
Sources Laurin and Poschmann (2013); authors' calculations.

they are still important as they might affect the timing of withdrawals of accumulated savings in retirement.

Furthermore, the way in which public benefits are reduced, and private costs increase, may raise important equity issues for seniors. Those who saved more income during their working life may find themselves worse off, due to clawback design, than individuals who saved nothing during their working years.

Examples of Income-Based Plans in Canada

As financial pressures from an aging population increase on age-based plans, many provinces are going back to the drawing board. B.C. revamped its public drug plan in 2003, moving from age-based to income-based coverage. In 2013, New Brunswick announced it would redesign its public drug benefits according to income by 2015, and Alberta has signaled a willingness to move away from its age-based plan as well. Because of the contrast in approaches, the B.C. and New Brunswick drug plan reforms, in particular, are worthy of closer examination.

Fair Pharmacare in B.C.

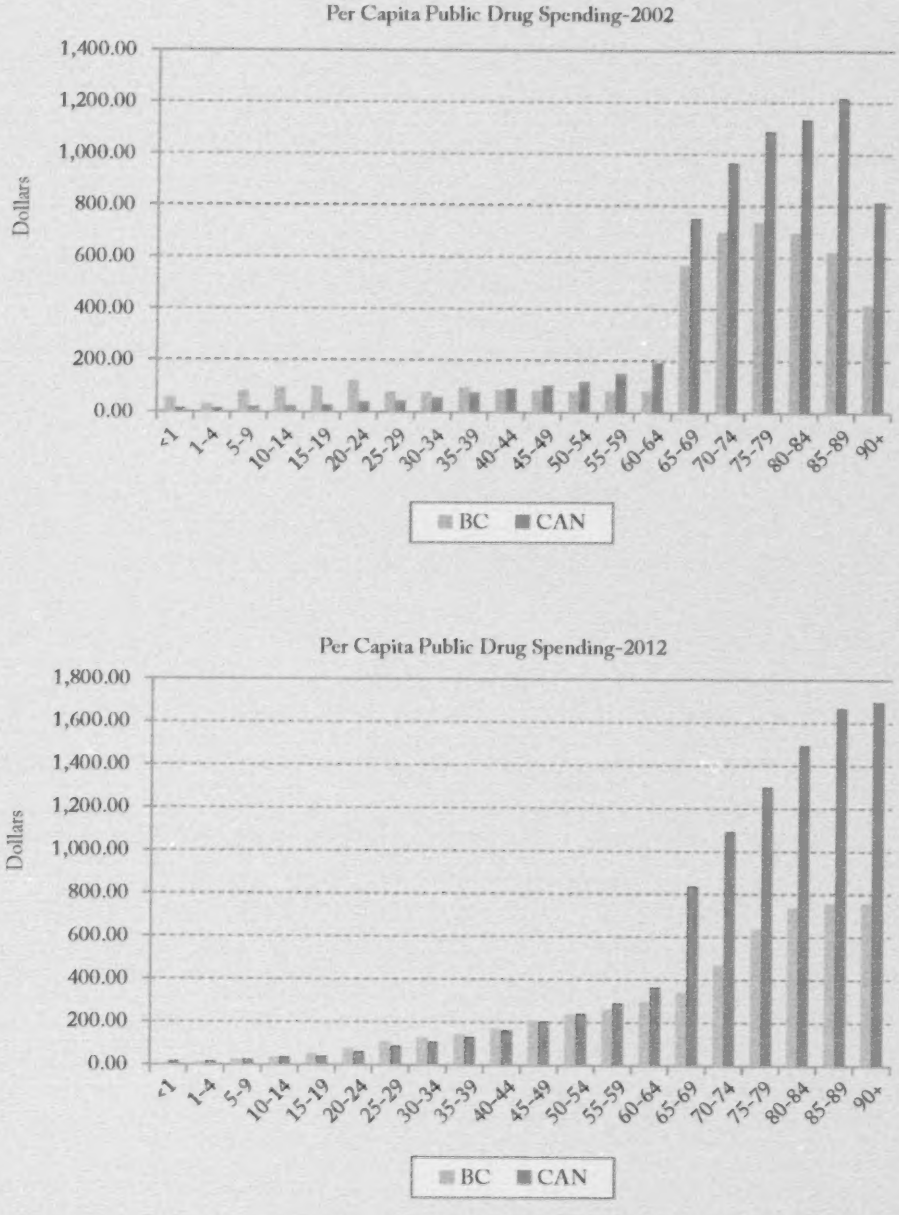
Prior to 2003, B.C. had a public drug plan that was similar to that of most Canadian provinces today: seniors were eligible for coverage, as were individuals on social assistance, and there was also some public coverage for high drug costs. But with growing worry that demographic aging would put an unsustainable burden on the health budget and further concerns about the equity of public drug coverage – that middle- to low-income seniors had much better and affordable access to drugs than did middle- to low-income workers under age 65 – reforms were implemented (Morgan et al. 2006).

The public drug plan was redesigned to eliminate eligibility based on age and replace it with eligibility based on income only. The current B.C. plan, Fair Pharmacare, applies to all residents without private insurance who voluntarily register for coverage. Fair Pharmacare does not charge an annual premium, but sets annual deductibles on a sliding scale based on income. It offers partial coverage above the deductible and comprehensive coverage for annual drug expenses above a ceiling. The ceiling is set at between 2 to 4 percent of family net income. And to help current seniors transition to the new plan, more generous rules apply to those born in 1939 or before.

What were the results of the reforms? As the government had hoped for, they put the public drug plan on a more sustainable financial footing. Per-capita drug spending grew by 4.4 percent annually after the reforms, a much slower rate than the 6.3 percent annual pace in the decade before reform. Furthermore, by reducing the close association between public drug costs and seniors, B.C. has made its public health budget less sensitive to population aging than budgets in other provinces (Figure 4).

While some of the savings in terms of the slower growth of drug costs came from factors beyond the scope of the reforms, the bulk of the reductions was accomplished by wealthy seniors paying a greater share of their health costs (Morgan et al. 2004). Hanley et al. (2006) found that a larger proportion of public funds was now spent on lower-income individuals than before. Still, there are lingering concerns about whether individuals or families with similar incomes are treated equitably – a family with higher drug needs must contribute much more of its income toward drug costs (Morgan et al 2006). That said, the changes to the drug program were generally successful in meeting policymakers' two stated goals – improving equity and making the plan more fiscally sustainable.

Figure 4: B.C. Per Capita Public Drug Spending vs. National Average, by Age Group (2002 and 2012)



Source: Canadian Institute for Health Information (2013).

A major concern when B.C. introduced its changes a decade ago was that shifting more of the drug-spending responsibility from the public purse to individuals would affect access.[11] But patient-level results have shown no such changes, at least as measured by two large categories of drug treatments, anti-hypertension drugs and cholesterol-reducing agents (Morgan et al 2006). In this regard, many B.C. seniors began to stockpile medicines once they exceeded the deductible in a given year, making additional drugs cost less or free (Caetano et al. 2006). That said, as noted earlier, there is some evidence that rates of non-adherence to prescriptions are much higher in B.C. than in other Canadian provinces, likely as a result of its high deductibles (Law et al. 2012).

The B.C. reforms, perhaps unintentionally, have helped reduce the welfare wall for families on social assistance. Because Fair Pharmacare lowers out-of-pocket drug spending for uninsured low-income households and only gradually increases out-of-pocket spending as income rises, it reduces the drug-cost impact as an individual leaves social assistance.

The creation of an income-based plan also introduced higher-than-previous implicit marginal tax rates, adding to the all-inclusive METR. For typical two-parent, two-child families, there are some sharp increases around annual income levels of $15,000 and $30,000 (Figure 5), but it's unclear exactly how many people – either workers or seniors – that this might affect. Overall, the impact of income-targeted drug benefits and high drug costs on all-inclusive METRs for working families is an increase of two-to-four percentage points.

New Brunswick: Building on the Quebec Model

In New Brunswick, policymakers must confront the impending fiscal challenges from a population base that is aging much more rapidly than in other provinces. In addition, some segments of the population lack drug insurance – an estimated 70,000 families in 2010 (New Brunswick 2012).

In 2014, the province instituted a transition plan toward a mandatory drug program that, by April 2015, will require all New Brunswickers without private drug insurance to participate. The new program will be financed mainly by premiums, which will vary according to family income (Table 3).[12] Premiums will not vary based on drug needs, and no one can be excluded because of prior health conditions. For "very" low-income families, below $15,000 for individuals and $31,000 for families, the premium will fall to zero. Co-payments will be 30 percent but cannot exceed $30 per prescription.[13] In 2015, the premiums will change and some low-income citizens will get a full premium subsidy.

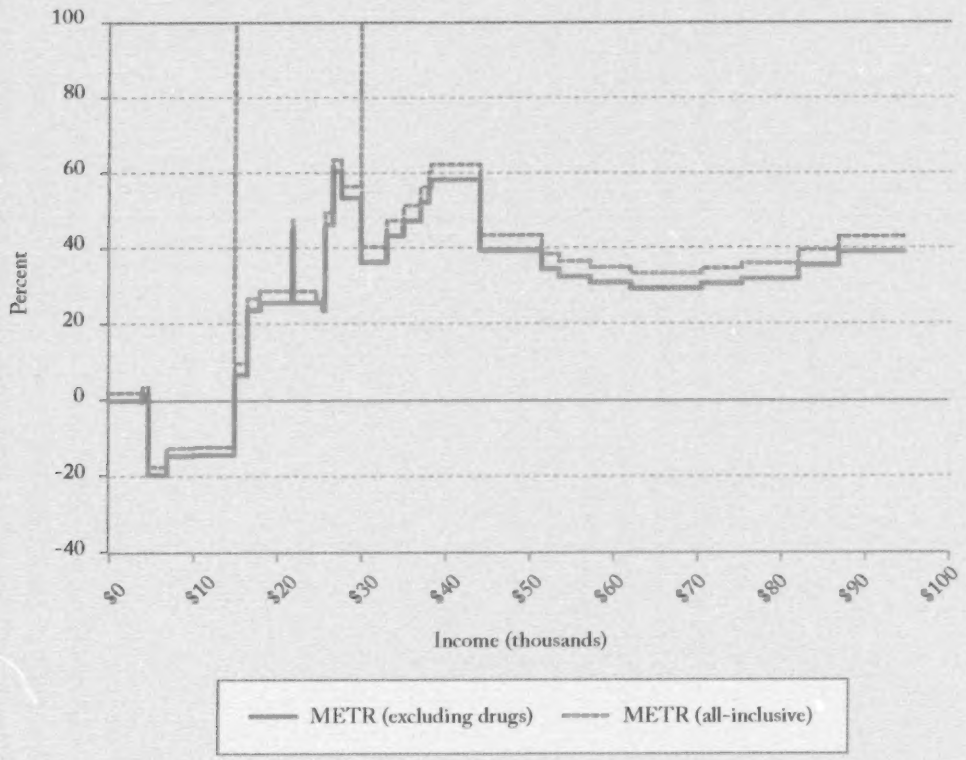
Although the plan intends to be self-sufficient from the mandatory premium payments, Quebec's experience throws that goal into doubt. Quebec initiated a similar drug plan, with the same financing principles, in 1997. Seventeen years later, the costs have increased more than premiums so

11 High co-payments could not only hinder access but result in higher public costs down the road (Tamblyn et al 2001). With this consideration in mind, B.C. policymakers attempted to design the new program so that most seniors would not face significantly higher costs compared to the previous plan.

12 The New Brunswick plan will rely on general taxation revenues to help pay for the additional costs that come with premiums that vary based on income, irrespective of drug needs.

13 The New Brunswick background study proposed that once annual co-payment costs reach a certain level – ranging from $800 to $2,000 – there would be full public coverage (New Brunswick 2012). However, the published plan did not include any limit beyond which there would be public coverage.

Figure 5: B.C. All-Inclusive METR, Family with $5,000 Annual Drug Costs (2013)



Note: This simulation is for a two-parent, two-child household with $5,000 in annual prescription drug costs.

Sources: Laurin and Poschmann (2013); authors' calculations.

that premiums now cover only about 60 percent of the plan's costs for those who are not subsidized, such as non-seniors and those not on social assistance.

Meanwhile, the general taxpayers' contribution to the public drug plan has skyrocketed, from about $700 million in 1997 to $2.3 billion in 2013. The Quebec experience should serve as a reminder that self-sufficiency in practice requires governments to increase premiums significantly in the event of large cost increases.

While full details of the 2015 New Brunswick plan were not available at the time of writing, we made an educated guess on its design, based on the background study (New Brunswick 2012) and the temporary 2014 measures (see Table 3).

The effect of the New Brunswick's new drug plan on the welfare wall will depend on a household's income level and drug needs. The new scheme may reduce the impact of prescription drugs on the welfare wall for individuals with high drug needs,

Table 3: New Brunswick Drug Premium Calculation

Year	Income Range (Single individuals)		Income Range (Families, two children)		Annual Premium
2014 (Temporary)	$0	$26,360	$0	$49,389	$800
	$26,361	$50,000	$49,390	$75,000	$1,400
	$50,001	$75,000	$75,001	$100,000	$1,600
	$75,001	and up	$100,001	and up	$2,000
2015 (Authors' Assumptions)	$0	$15,000	$0	$31,000	$0
	$15,001	$27,000	$31,001	$48,000	$50 - $1,000
	$27,001	and up	$48,001	and up	$1,000

Sources: Government of New Brunswick website; New Brunswick (2012); authors' calculations.

but it may also increase it for those with low drug needs (See Box A). This is because individuals on social assistance do not have to pay a premium, while otherwise uninsured individuals who participate in the labour force will be required to pay an annual premium that is income adjusted.

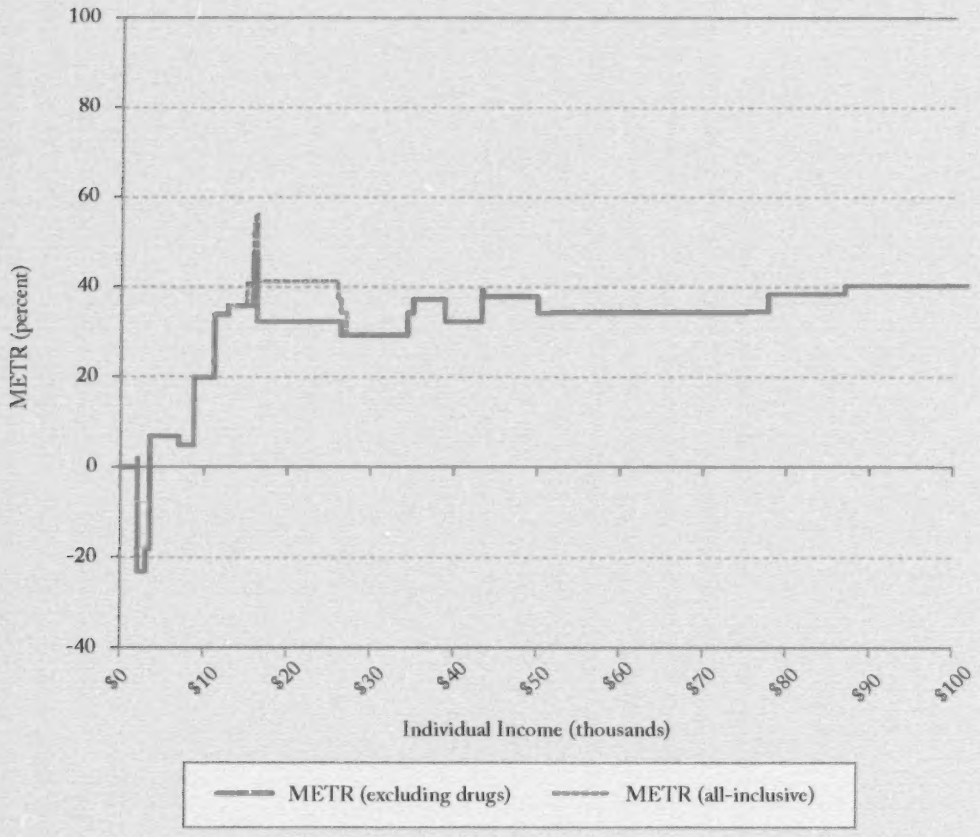
In 2015, according to our assumptions, public subsidies for annual premiums will be phased out over designated income ranges. For single individuals, benefits may be clawed back between annual earnings of $15,000 to $27,000, adding about nine percentage points to the overall METR (Figure 6A). For families, the impact of scaling back benefits on the METR may be even more pronounced. According to our calculations, the new drug plan will increase the all-inclusive METR by roughly 12.5 percentage points for those earning between $31,000 and $48,000, bringing the total METR to about 70 percent over this income range (Figure 6B).

New Brunswick may decide to maintain its drug plan for low-income seniors alongside the new mandatory plan for working-age families. Currently, public drug benefits for low-income New Brunswick seniors are attached to federal guaranteed income supplement (GIS) receipts and immediately cut off once a senior does not qualify for the federal plan. However, continuing this approach would cause some inequities between members of the separate plans. METRs on low-income seniors are usually 50 percent or higher, due to the strong clawbacks in GIS payments and supplementary low-income provincial benefits. Adding the cost of drug benefits on top of these clawbacks can result in astronomical METRs.

Lessons from British Columbia and New Brunswick in Designing Income-based Drug Plans

High METRs are a consequence of tying benefits to income – an inevitable downside to having a reduction in benefits that is intended to limit public costs. When setting up an income-based plan, provinces must consider how many people might

Figure 6A: New Brunswick's All-Inclusive METR, Single Individuals (2015)



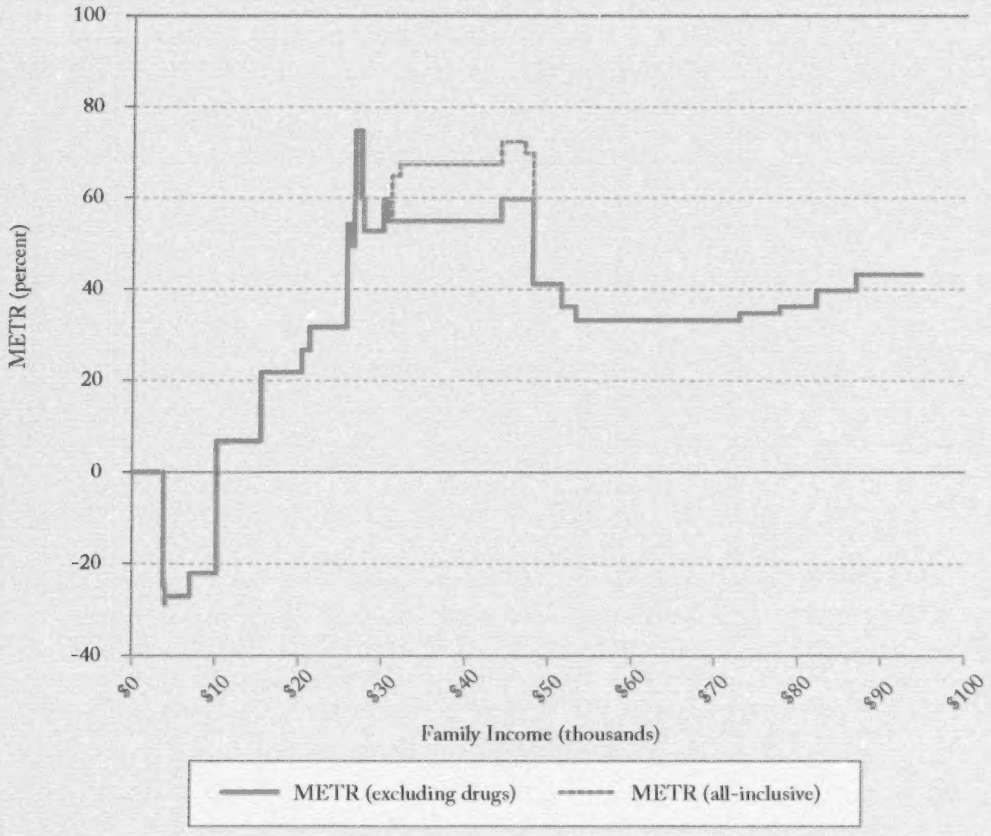
Note: This simulation is for a single individual based on assumptions for the 2015 drug plan in Table 3.
Sources: Laurin and Poschmann (2013); authors' calculations.

be affected by the clawbacks and whether notches occur at income ranges with large groups of earners. Furthermore, notches may occur at low-income ranges where people are likely most sensitive to the earning reduction effects of drug clawbacks compounded by reductions in other government transfer programs.

Creating a Single, Income-Based Drug Plan that Manages Public Costs

On balance, we recommend a single, income-based drug plan could apply to all individuals, with gradually declining benefits upon leaving social assistance. Such an approach would be more or less equivalent to current plans, whereby those on social

Figure 6B: New Brunswick's All-Inclusive METR, Family (2015)



Note: This simulation is for a two-parent, two-child family, based on the 2015 drug plan in Table 3 and assuming no premiums charged for children under 18.

Sources: Laurin and Poschmann (2013); authors' calculations.

assistance qualify for full drug benefits, but with a gradual reduction in benefits to ease the transition from social assistance while extending public coverage to working low-income families without private drug insurance.

The main challenge in moving to this type of plan is its potential to increase public costs, which depends on how fast public subsidies are reduced over set income ranges. New Brunswick's annual premiums are fully subsidized for those on social assistance and phased out at higher income levels. Its plan may result in an increased welfare wall, depending on an individual's drug needs, because of sharp clawbacks in subsidies over a narrow income range. One solution here is to expand the income range over which the benefits are phased out, but this option can come at a great public cost. In contrast, B.C. reduced the impact of

drug benefits on the welfare wall without adding to overall public costs by setting deductibles as a percentage of income. Cost neutrality was accomplished by charging seniors more for drugs than under prior plans.

Benefits for Seniors in Income-based Plans

Because income-based drug plans may provide similar benefits to working-age individuals and seniors of equal income, consideration must also be given to the pressure on seniors to withdraw from their retirement savings to meet their drug bills. Existing METRs for seniors are very high on the first roughly $16,000 of earned income, as the guaranteed income supplement (GIS) benefits are reduced over this income range.

In some provinces, these clawbacks combine with reductions in provincial senior benefits that apply over similar income ranges as the GIS, which can cause all-inclusive METRs to exceed 100 percent, in some cases (Laurin and Poschmann 2014). Adding drug benefit clawbacks on top of these other reductions could easily result in METRs above 100 percent, which would mean that such individuals could lose money as they earn more retirement income.

For seniors, income-based drug plans must phase out benefits so that those who chose to save for retirement – including those who are compelled to save, such as with Canadian Pension Plan contributions – are not overly punished for diligent saving. When individuals make sacrifices during their working years to set aside money, they should not be punished later as a result of severe clawbacks at certain thresholds to the degree they would be better off not to have saved at all.

(Mandatory) Premium-Based or (Voluntary) Deductible-Based Plans

As we have seen, income-based plans may be voluntary or mandatory. A mandatory plan for those without private insurance can greatly reduce the number of uninsured citizens, which may help to improve access to prescription drugs. The challenge is to preserve employer-sponsored drug coverage and not encourage employers to drop their plans and switch to the public sector plan.

Mandatory plans tend to collect payments via premiums to participate in the plan whereas B.C.'s voluntary plan collects private payments mainly via deductibles. Because the B.C. plan requires complete payment of the deductible before public reimbursement begins, this can be seen as a barrier to accessing medications and may result in a higher level of drug avoidance relative to other provinces.

While a mandatory premium-based plan may have up-front costs for low-income families, it tends not to cause affordability issues at the point of filling a prescription in the way that a large deductible might. Quebec's relatively low prescription drug avoidance rates are evidence of this result.

The Future of Age-based Plans

Provinces whose drug costs are closely tied to an aging population will come under serious financial pressure to reform their drug plans. In particular, Ontario, Nova Scotia, P.E.I. and Alberta are going to face powerful age-driven costs over the next few decades. Policymakers should take appropriate action. Some provinces, like B.C., have already acted to relieve financial pressures in light of the looming demographic crunch and provide good lessons on how to plan ahead. Most recently, the Drummond Commission (2012) recommended that Ontario scrap its age-based and social assistance-based drug plans and replace them with an income-based drug plan similar to the B.C. approach to help relieve the fiscal pressure from an aging population and to reduce the welfare wall.

Reducing Welfare Walls While Managing Public Costs

To ensure access to drugs for citizens least able to

afford them, age-based plans must keep an income-based component to the overall drug plan design. This income-based aspect comes in the form of drug benefits for those on social assistance.

Meanwhile, some provinces have designed special programs to lower the welfare wall caused by the loss of drug benefits when people no longer qualify for social assistance. For example, Alberta's Adult Health Benefit provides prescription drug coverage, among other benefits, to certain groups of low-income households. In particular, low-income Alberta households that have transitioned from income support or that have ongoing prescription drug needs are eligible for the coverage. (Low-income is defined as below $15,545 for single individuals and $34,346 for couples with two children.)

For its part, Ontario has created a temporary continuation of drug benefits for those transitioning from social assistance, which extends coverage for six to 12 months after one's earnings exceed the social assistance maximum. Although Alberta's and Ontario's programs help blunt the impact of losing prescription drug benefits for social assistance recipients entering the workforce, the inevitable loss of drug benefits for many remains. A more appealing solution to the welfare wall would be to create a single, income-based drug plan that applies to all individuals. This would remove the need for patchwork plans to transition from social assistance and collapse age-based plans into a single income-based plan, allowing for a smooth transition from social assistance as well as extending some public coverage to working low-income families without private drug insurance.

Income-Testing Senior Drug Benefits

In 2012, Ontario made minor changes to improve the financial footing of its drug plan by introducing higher co-payments for seniors with incomes above $100,000. This was a small measure that was intended to raise $50 million annually.[14] Arguably, without a greater initiative to improve the financing of the province's age-based drug plan, future reforms are likely to continue down this road – with a larger and farther-reaching set of income-tests for seniors within the plan.[15] This would create higher effective tax rates for seniors who, in response, might be more strategic with timing their income (savings withdrawals) to avoid sharp increases in such private costs.

We perceive as undesirable any potential further movement toward wider income testing for drug benefits exclusively for seniors. It makes public coverage based on income only for those age 65 and up. Such a plan possesses the drawbacks inherent in both age-based and income-based plans. Income testing drug benefits for seniors creates complications in program design and maintains the inequity vis-à-vis the uninsured working-age population who must pay higher drug costs than seniors earning similar incomes. While we understand the financial pressures that require more

14 To preserve the financial stability of Ontario's senior-based drug plan, some analysts have encouraged the province to partially pre-fund future drug benefits in a manner similar to the mid-1990s reforms to the Canadian Pension Plan (Robson 2002, Stabile and Greenblatt 2010, Simpson 2012). Despite this, little action has been taken to put the plan on a more sustainable footing, as prefunding Ontario's seniors plan would require a large increase in payroll taxation or other public levy (Robson and Busby 2011).

15 Advocates of Ontario's current plan would emphasize that costs savings could be had simply by establishing better pricing policies for generic and brand name drugs. While it's true that this would produce cost savings, it's unlikely, that these savings will be enough to offset future age-driven increases in demand.

revenues to sustain the current Ontario plan, a better plan would see income-test drug benefits for all citizens, regardless of age.

Transitioning Away from Senior-Based Drug Plans

The transition from senior-based drug plans to income-based drug plans should not be taken lightly. Take the Alberta example. Alberta's 2013 budget proposed a redesign of the province's public drug plan. The current scheme is extremely sensitive to the financial pressures of aging, and also recognizes that about 740,000 Albertans are without drug coverage (Budget 2013). The main thrust of the redesign would be to move exclusive coverage away from seniors toward a plan where all individuals without private insurance, including seniors, would qualify based on their income. The reform anticipates immediate savings of $180 million.

However, the government backed away amid public pressure. Much of the public opposition came from seniors' groups and those who highlighted the reforms as cost-cutting measures, shifting the financial burden of prescription drugs onto the sick. Alberta's experience shows all provinces with senior-based drug plans that as the number of qualifying seniors grows, the window for reform will close further. While resistance to any potential reduction in benefits should be anticipated, efforts at reforming the drug plan should consider special design rules to ensure that the current group of seniors are not greatly harmed by the changes, like in the B.C. example.

Push for Universal Pharmacare

Much criticism of the concept of replacing age-based plans with income-based ones arises from analysts that desire to create a large universal drug plan. Many analysts have highlighted that shifting a larger share of total drug costs onto middle- and high-income seniors decreases government's ability to use its single, bulk purchasing power to leverage savings on behalf of society (Morgan, Daw and Law 2013). This advantage could be further exploited, as argued, if government were to increase the public proportion of drug benefits and expand coverage to larger shares of the population, as in the UK and other West European countries.[16]

While we appreciate this argument in principle, in practice Ottawa and the provinces have over the last few decades eschewed taking on the additional costs of extending public drug plans. Although much of the discussion for reforming Canada's drug coverage to date has focussed on creating a universal federal public drug plan (Morgan, Daw and Law 2013), other options must be explored absent political traction in pursuit of this approach.

Concluding Thoughts

The desire to limit public costs for drug plans inevitably results in non-universal coverage. Switching from an age- to an income-based plan for everyone would reduce the sensitivity of public costs to an aging population, offer drug benefits more equitably and might even reduce the likelihood of patients not filling a prescription owing to cost. Provinces must, however, consider such an approach's potential negative incentive effects on work. High marginal tax rates reduce the incentives to work and earn. And we should be careful when income-testing drug recipients. When combined with reductions in the plethora of targeted government programs, badly designed income-based plans may create extremely high METRs.

16 Criticism extended to the missed advantages of public drug listing decisions on the use of cost-effective products – an advantage, as argued, that is reduced with a smaller public system that pays only for expenses beyond a large deductible.

Meanwhile, drug plans that are targeted toward seniors are acutely vulnerable to the pressures of an aging population. Age-based plans might have been a cost-friendly option decades ago when the ratio of seniors to workers was low, but the wave of retiring boomers will rapidly make these plans less affordable.

Cost concerns remain even if coverage is based on income. The immediate worry is that, on transitioning to an income-based plan, costs will increase as coverage for low-income workers expands. Mandatory premium-based plans, like in Quebec, and soon in New Brunswick, try to address these concerns with a reasonably rapid phasing out of public premium subsidies. The B.C. experience shows that moving from a senior- to an income-based drug plan can be revenue neutral in the short run – as long as middle- to high-income seniors are asked to pay a sufficiently larger share of drug costs than before.

Provinces with senior-based plans also extend benefits to those on social assistance, making transitioning off welfare difficult for families with drug needs. We believe that attaching drug benefits to social assistance makes little sense.[17] Drug benefits under social assistance would be more effective if replaced with a single plan that income tests benefits for all individuals and families without private coverage.

Overall, we think the benefits of income-based plans are more attractive than those of age-based ones. Transitioning from current plans is always tricky, and the impact of benefit clawbacks, as well as total public costs, must be carefully managed.

17 Equally, other than administrative simplicity, it makes little sense that seniors' drug coverage be tied to GIS qualification.

REFERENCES

Alberta Budget. 2013. *Budget 2013: Responsible Change.* Government of Alberta. Edmonton: Government of Alberta.

Caetano, Patricia A., Colette B. Raymond, Steve Morgan, and Lixiang Yan. 2006. "Income-based Drug Coverage in British Columbia: The Impact on Access to Medicines." *Healthcare Policy.* Amsterdam, Netherlands: Healthcare Policy. No 2(2). pp154-169. November.

Canadian Institute for Health Information (CIHI). 2013. "National Health Expenditure Trends: 1975 to 2013." Ottawa: Canadian Institute for Health Information.

CIHI. 2014. "Prescribed Drug Spending in Canada, 2012: A Focus on Public Drug Plans." Ottawa: Canadian Institute for Health Information.

Coombes, Megan Eileen. 2004. "An Intra- & Inter-Provincial Analysis of the Fair Pharmacare Policy in British Columbia." Thesis Submission. Vancouver: The University of British Columbia. August.

Council of First Ministers. 2004. "A 10-Year Plan to Strengthen Healthcare." First Ministers Meeting on the future of Healthcare. Ottawa: Health Canada. September. (Date of Access: July 24, 2014) http://www.hc-sc.gc.ca/hcs-sss/delivery-prestation/fptcollab/2004-fmm-rpm/index-eng.php

Drummond Commission (Commission on the Reform of Ontario's Public Services). 2012. *Public Services for Ontarians: A Path to Sustainability and Excellence.* Queen's Printer for Ontario.

Hanley G.E., Morgan S., Yan L. 2006. "Income-Based Drug Coverage in British Columbia: The Impact on the Distribution of Financial Burden." Healthcare Policy. (Date of Access: July 29, 2014) http://www.longwoods.com/product.php?productid=18514&cat=458

Health Council of Canada. 2014. "Where You Live Matters: Canadian Views on Health Care Quality." Results from the 2013 Commonwealth Fund International Health Policy Survey of the General Public. Ottawa: Health Council of Canada. Bulletin no. 8. January.

Lankin, Francis, and Munir A. Sheikh. 2012. *Brighter Prospects: Transforming Social Assistance in Ontario. Final Report.* Commission on the Review of Social Assistance in Ontario. October.

Laurin, Alexandre, and Finn Poschmann. 2013. "Treading Water: The Impact of High METRs on Working Families in Canada." E-Brief. Toronto: C.D. Howe Institute. July.

Laurin, Alexandre, and Finn Poschmann. 2014. "Who Loses Most? The Impact of Taxes and Transfers on Retirement Incomes." E-Brief. Toronto: C.D. Howe Institute.

Law, Michael R., Lucy Cheng, Irfan Dhalla, Deborah Heard, and Steven Morgan. 2012. "The Effect of Cost on Adherence to Prescription Medications in Canada." *Canadian Medical Association Journal.* No. 184 (3) pp. 297-302.

MISWAA (Task Force for Modernizing Income Security for Working-Age Adults). 2006. *Time for a Fair Deal: Modernizing Income Security for Working-Age Adults.* May. Date of Access: July 5, 2014) http://www.civicaction.ca/sites/default/files/MISWAA%20Report%20Col%203%20%28FINAL%29.pdf

Morgan, Steve G., Robert G. Evans, Gillian E. Hanley, Patricia A. Caetano, and Charlyn Black. 2006. "Income-Based Drug Coverage in British Columbia: Lessons for BC and the Rest of Canada." *Healthcare Policy.* No. 2(2) pp. 115-127.

Morgan Steve G., Agnew JD, Barer ML. 2004 "Seniors' prescription drug cost inflation and cost containment: evidence from British Columbia." Amsterdam, Netherlands: *Health Policy*. No. 68(3) pp. 299-307.

Morgan, Steve, Jamie Daw, and Michael Law. 2013. *Rethinking Pharmacare in Canada*. Commentary 384. Toronto: C.D. Howe Institute. June.

New Brunswick. 2012. "Report of the Advisory Committee on Health Benefits: An Insurance Plan for Prescription Drugs for Uninsured New Brunswickers." Final Report prepared for ESIC board of directors. December.

Robson, William B.P. 2002. *Saving for Health: Prefunding Health Care for an Older Canada*. Commentary 170. Toronto: C.D. Howe Institute.

Robson, William B.P., and Colin Busby. 2011. *A Social Insurance Model for Pharmacare: Ontario's Options for a More Sustainable, Cost-Effective Drug Program*. Commentary 326. Toronto: C.D. Howe Institute. April.

Simpson, Jeffrey. 2012. *Chronic Condition: Why Canada's Healthcare System Needs to Be Dragged Into the 21st Century*. Penguin Group Canada. September.

Stabile, Mark, and Jacqueline Greenblatt. 2010. "Providing Pharmacare for an Aging Population: Is Prefunding the Solution?" With a commentary by Michel Grignon. Institute for Research on Public Policy. IRPP Study No.2. February.

Tamblyn, Robyn, et al. 2001. "Adverse Events Associated with Prescription Drug Cost-Sharing Among Poor and Elderly Persons." *Journal of the American Medical Association*. No. 285 pp. 421-429.

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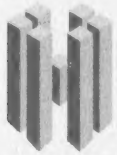

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